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(b) the axial length of the wiping surface of the wiper cup is greater than the maximum radial width of the lip; and
moving the plug in the tubular member to wipe the fluid. - -

REMARKS

Reconsideration of this application in light of the above amendments and the following remarks is requested.

The allowance of claims 1-51 and 89-108 is acknowledged with appreciation.

Provisionally allowed claims 53, 63, 81, and 113 have been canceled and their corresponding independent claims 52, 62, 80, and 109 have been amended to add the limitations of claims 53, 63, 81, and 113, respectively. Thus, claims 52, 62, 80, and 109 are in condition for allowance. Dependent claims 54, 55, 57, 64, 67, 68, 69, 82 and 86-88 have been amended from a formal standpoint and dependent claims 56, 57 and 84, 86 and 88 have been maintained in their original form and, since all of these claims now depend from an allowed claim, they are also in condition for allowance.

Provisionally allowed dependent claims 58, 59, 61, 65, 66, 83, 84, and 85 have been cancelled and rewritten in independent form as claims 114-120, respectively.

Dependent claims 60 has been amended to depend on allowed independent claim 115, and rejected claims 70-79 have been cancelled. In amending and rewriting the above claims the preambles and some of the terminology has been changed in the interest of consistency and clarity.

Independent claims 121-126, 128, 129, 131, 139, 140, and 141 have been added which are allowable since the cited references do not teach the axial length of the wiper cup being greater than the diameter of the body member; the axial length of the wiping surface being greater than the maximum radial width of the wiper cup; the wiper cup defining an annular space around the body member and having a substantially linear wiping surface for wiping the inner surface of the tubular member with the axial length of the wiping surface being greater than the maximum radial width of the space; the axial length of the space being greater than the maximum radial width

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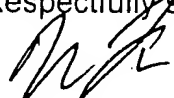
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thereof; the axial length of the space being greater than two times the maximum radial width thereof; the axial length of the wiper cup being greater than the maximum radial width of the space; the axial length of the space being greater than one-half the diameter of the body member; the length of the wiping surface of the wiper cup being greater than the length of the wiping surface of the lip; and the axial length of the wiping surface of the wiper cup being than the maximum radial width of the lip.

Dependent claims 127, 130, and 132-138 have been added that further limit their corresponding independent claims in a patentable sense and are therefore also in condition for allowance. In view of all of the foregoing, the claims now presented are in condition for allowance and an early notice thereof is requested.

Should the Examiner have any questions or comments regarding the above, he is invited to telephone the undersigned at the number listed below.

Respectfully submitted,




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Dated: 8/29/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO SPECIFICATION

Please rewrite the paragraph at Column 4, lines 21-27, as follows:

Body member 24 has a substantially cylindrical configuration having a longitudinal axis extending vertically and a radially-extending thickness with an outer surface 28 and a central opening, such as a first bore 30, defined longitudinally therethrough. Hence, when the term "axial direction" is used henceforth, it is meant to correspond to a direction extending along the vertically extending longitudinal axis, and when the term "radial direction" is used henceforth, it is meant to correspond to a direction perpendicular to the axial direction. A larger second bore 32 is defined in the upper end of body member 24 such that an upwardly facing annular shoulder 34 is defined between first bore 30 and second bore 32. Thus, a recess is formed in the upper end of the central opening.

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VERSIONS WITH MARKINGS TO SHOW CHANGES
MADE TO CLAIMS

52. (AMENDED) A method for wiping an inner surface of a [casing] tubular member comprising[:] providing in the [casing] tubular member a plug having two conical wipers [that engage] one of which overlaps the other in an axial direction, the wipers engaging the inner surface in a manner so that each wiper is deflected into a substantially cylindrical shape in engagement with the inner surface; and applying pressure from one end of the [casing] tubular member to move the plug within the [casing] tubular member.

54. (AMENDED) The method of claim 52 wherein the wiper closest to the one end of the [casing] tubular member is overlapped by the other wiper.

55. (AMENDED) The method of claim 52 wherein as the wiper closest to the one end of the [casing] tubular member wears, the pressure will be applied to the other wiper.

57. (AMENDED) The method of claim 52 further comprising:
providing an additional plug in the [casing] tubular member having two axially-spaced, conical wipers thereon, wherein each wiper on the additional plug engages the inner surface in a manner so that the wiper is deflected into a substantially cylindrical shape in engagement with the inner surface; and
applying pressure from one end of the [casing] tubular member to move the additional plug within the [casing] tubular member.

60. (AMENDED) The method of claim [57] 115 wherein the wiper closest to the one end of the [casing] tubular member is overlapped by the other wiper on each plug.

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62. (AMENDED) A method for [cementing a casing containing drilling mud in a well] wiping an inner surface of a tubular member comprising:

introducing a first plug into one end of the [casing] tubular member;

introducing [cement] a fluid into the one end of the [casing] tubular member to force the first plug downwardly in the [casing] tubular member to displace the [mud] fluid from the [casing] tubular member;

providing at least two [axially spaced] wipers on the first plug, one of the wipers overlapping the other wiper in an axial direction so that, as the plug passes downwardly in the [casing] tubular member, it wipes the inner surface of the [casing] tubular member of any accumulated [mud] fluid, wherein each wiper of the first plug is sized to engage the inner surface in a manner so that it is deflected into a substantially cylindrical wiping engagement with the inner surface;

terminating the step of introducing the [cement] fluid into the [casing] tubular member;

introducing a second plug into the [casing] tubular member end;

forcing the second plug downwardly through the [casing] tubular member so that it forces the [cement] fluid and the first plug downwardly in the [casing] tubular member;

establishing a differential pressure across the first plug to open the first plug and allow the [cement] fluid to pass through the first plug and exit the other end of the [casing] tubular member; and

providing at least two [axially spaced] wipers on the second plug so that as the second plug passes downwardly in the [casing] tubular member, it wipes the inner surface of the [casing] tubular member of any accumulated [cement] fluid, wherein each wiper of the second plug is sized to engage the inner surface in a manner so that it is deflected into a substantially cylindrical wiping engagement with the inner surface[, one of the wipers of the second plug overlapping the other wiper of the second plug].

64. (AMENDED) The method of claim 62 wherein the wiper of each plug closest to the one end of the [casing] tubular member is overlapped by the other wiper of the same plug.

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67. (AMENDED) The method of claim 62 wherein the second plug is forced downwardly in the [casing] tubular member introducing a fluid into the [casing] tubular member.

68. (AMENDED) The method of claim 62 wherein the second plug forces the [cement] fluid from the [casing] tubular member into an annulus formed between the [casing] tubular member and the well.

69. (AMENDED) The method of claim 62 further comprising providing a float shoe in the [casing] tubular member which stops the downward movement of the first plug and causes the differential pressure.

80. (AMENDED) A method for [cementing a casing containing drilling mud in a well] wiping an inner surface of a tubular member comprising:

introducing a first plug into one end of the [casing] tubular member;

introducing [cement] a fluid into the one end of the [casing] tubular member to apply pressure to the first plug to force it downwardly in the [casing] tubular member to displace the [mud] fluid from the [casing] tubular member;

providing at least two [axially spaced] wipers on the first plug, one of the wipers overlapping the other in an axial direction so that, as the first plug passes downwardly in the [casing] tubular member, it wipes the inner surface of the [casing] tubular member of any accumulated [mud, wherein] fluid, and so that, as a wiper on the first plug closest to the one end of the [casing] tubular member wears, the pressure will be applied to the other wiper of the same plug;

terminating the step of introducing the [cement] fluid into the [casing] tubular member;

introducing a second plug into the [casing] tubular member end;

applying pressure to the second plug to force it downwardly through the [casing] tubular member so that it forces the [cement] fluid and the first plug downwardly in the [casing] tubular member;

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establishing a differential pressure across the first plug to open the first plug and allow the [cement] fluid to pass through the first plug and exit the other end of the [casing] tubular member; and

providing at least two [axially spaced] wipers on the second plug, one of the wipers overlapping the other in an axial direction so that, as the second plug passes downwardly in the [casing] tubular member, it wipes the inner surface of the [casing] tubular member of any accumulated [cement] fluid, wherein as a wiper on the second plug closest to the one end of the [casing] tubular member wears, the pressure will be applied to the other wiper of the same plug.

82. (AMENDED) The method of claim 80 wherein the wiper of each plug closest to the one end of the [casing] tubular member is overlapped by the other wiper of the same plug.

86. (AMENDED) The method of claim 80 wherein the step of applying pressure to the second plug comprises introducing a fluid into the [casing] tubular member.

87. (AMENDED) The method of claim 80 wherein the second plug forces the [cement] fluid from the [casing] tubular member into an annulus formed between the [casing] tubular member and the well.

88. (AMENDED) The method of claim 80 further comprising providing a float shoe in the [casing] tubular member which stops the downward movement of the first plug and causes the differential pressure.

109. (AMENDED) A [cementing plug for use in cementing a casing in a well] device for wiping an inner surface of a tubular member comprising:

a plug having a longitudinal axis;

a first wiper extending radially outwardly from the plug at an acute angle with respect to the longitudinal axis of the plug;

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a second wiper extending radially outwardly from the plug at an acute angle with respect to the longitudinal axis of the plug and in an axially spaced relation to the first wiper so that when the plug is inserted in one end of the [casing] tubular member and pressure is applied to the plug to force it downwardly through the [casing] tubular member, the wiper portions wipe the inner surface of the [casing] tubular member; [and] wherein, as the wiper closest to the one end of the [casing] tubular member wears, the pressure will be applied to the other wiper; and

an insert disposed across a central opening in the plug for closure thereof, wherein said insert is a shearable member adapted for shearing and opening the central opening when a predetermined pressure is applied across the shearable member or a substantially non-shearable member adapted for substantially permanent closure of the central opening.

110. (AMENDED) The [plug] device of claim 109 wherein the plug comprises a body member having an elastomeric jacket disposed therearound and wherein the first and second wipers are integrally formed with the jacket.

111. (AMENDED) The [plug] device of claim 109 wherein the jacket comprises a cylindrical portion surrounding the body member and is integrally formed with the wipers.

112. (AMENDED) The [plug] device of claim 109 wherein the body member is cylindrical and wherein the jacket has a through bore for receiving the body member.